Treatment Option Case Study - Hawaii

(proposed management system)

Conservation Effects Worksheet

Cropland - Pineapple

(land use and crop)

Resource Setting: Oahu, Hawaii

Pineapple lands are located in the central Oahu plateau, between Koolau and the Waianae mountain ranges. The annual rainfall is between 35 and 50 inches. The elevation ranges from 500 to 1200 feet. The Kunia, Kolekole, and Wahiawa series are the major soils found in this resource area. These are made up of silty clays and silty clay loams. The slopes range from 0 to 8%

Conservation Treatment :

The treatment options presented consist of the following management and structural practices which have not been mentioned in the Present Management System. Under cultivation, a reduction in the time the field is left open will reduce the potential for erosion. Incorporation of crop residue will help to prevent erosion and decrease the leaching of agricultural chemicals. Also, following of fields will help to reduce off site impacts. It will also decrease sediment detachment within the fields. Installation of terraces will help to reduce erosion

Resource Problems Before Treatment:

Erosion occurs from overland flow of water. This creates sheet, rill, and gully erosion. Wind erosion occurs to a minimal extent. The location of aquifers and surface flows leads to potential contamination of ground water and receiving waters. The Kaiaka Waialua HUA and the Pearl Harbor HUA both contains pineapple in their watersheds. Availability of water limits acreage being irrigated.

ACTIONS (Kinds, Amounts, Timing)	**EFFECTS** (Effects of Continuing Bench System)
Crop Residue Use (344) - Use 3,000 Ibs or more to control wind erosion and prevent sediment movement - The entire pineapple plant is used less the fruit **Conservation Cover** (327) - Allow fallow fields to attain a cover of 80% or better. This will consist mostly of volunteer cover. - Any recommended cover crop from the green manure and cover crop list can be used. **Nutrient Management** (590) - Nitrogen, phosphorus, potassium, zinc, ferrous sulfate, magnesium and calcium will be applied according to soils test. - Soil fertility levels will be monitored so excessive application will not occur. - Banding will be practiced as well as foliar application. **Pest Management** (595) - Timing and application rate shall be monitored to provide the maximum benefit and the least impact on water bodies as well as a minimal impact on the flora and fauna of the treated area. - All state laws regarding application and disposal shall be followed. - Attempts will be made to reduce the amount used and to reduce the environmental impacts.	The use of the treatment option described above will reduce erosion at or below T. For the soils in this resource setting, this will be 5 tons per acre per year. The option will result in decreased sediment detachment and minimized sedimentation of adjacent areas and water bodies. Treatment of the resource problem will significantly improve the quality of the wildlife habitat. A water management plan will decrease the leaching of nutrients and pesticides into surface waters and ground water aquifers. Nutrient and pesticide management will decrease non-point source pollution by decreasing the levels of agricultural chemicals applied. Use of less hazardous chemicals will decrease the potential for impairment of the environment, and related water sources. Grassed Waterways will help filter field runoff and improve the quality of water leaving the property.

ACTIONS (Kinds, Amounts, Timing)	**EFFECTS** (Effects of Continuing Bench System)
Terraces (600) - They will be installed to SCS specifications. - Safe outlets will be provided. **Grassed Waterway** (412) These will provide outlets for terraces and hillside ditches. They will be vegetated according to SCS specifications. **Sediment Basin** (350) - They will be installed to SCS specifications **Access Road** (560) - As part of a conservation plan, access roads shall be constructed to control runoff, prevent erosion, and maintain or improve water quality. **Conservation Cropping Sequence** (328) - Incorporate crop residue to maintain or improve organic matter content. - Soil amendments and fertilizers will be added according to a soils test. - Replanting of fields with big erosion potential will be done during periods of low rainfall. **Irrigation Water Conveyance** (428) - All water systems will be installed according to SCS specifications to achieve maximum efficiency. - Materials will be equal to or superior to materials requirements in the technical guide.	See effects statement on page 2.

ACTIONS (Kinds, Amounts, Timing)	**EFFECTS** (Effects of Continuing Bench System)
Irrigation Water Management (449) - Efficient use of irrigation water to provide a desired crop response. - Amounts applied will not promote erosion or loss of crop nutrients. - Management will serve to improve water quality.	See effects statement on page 2.
Comments:	
Actions will vary among farmers.	